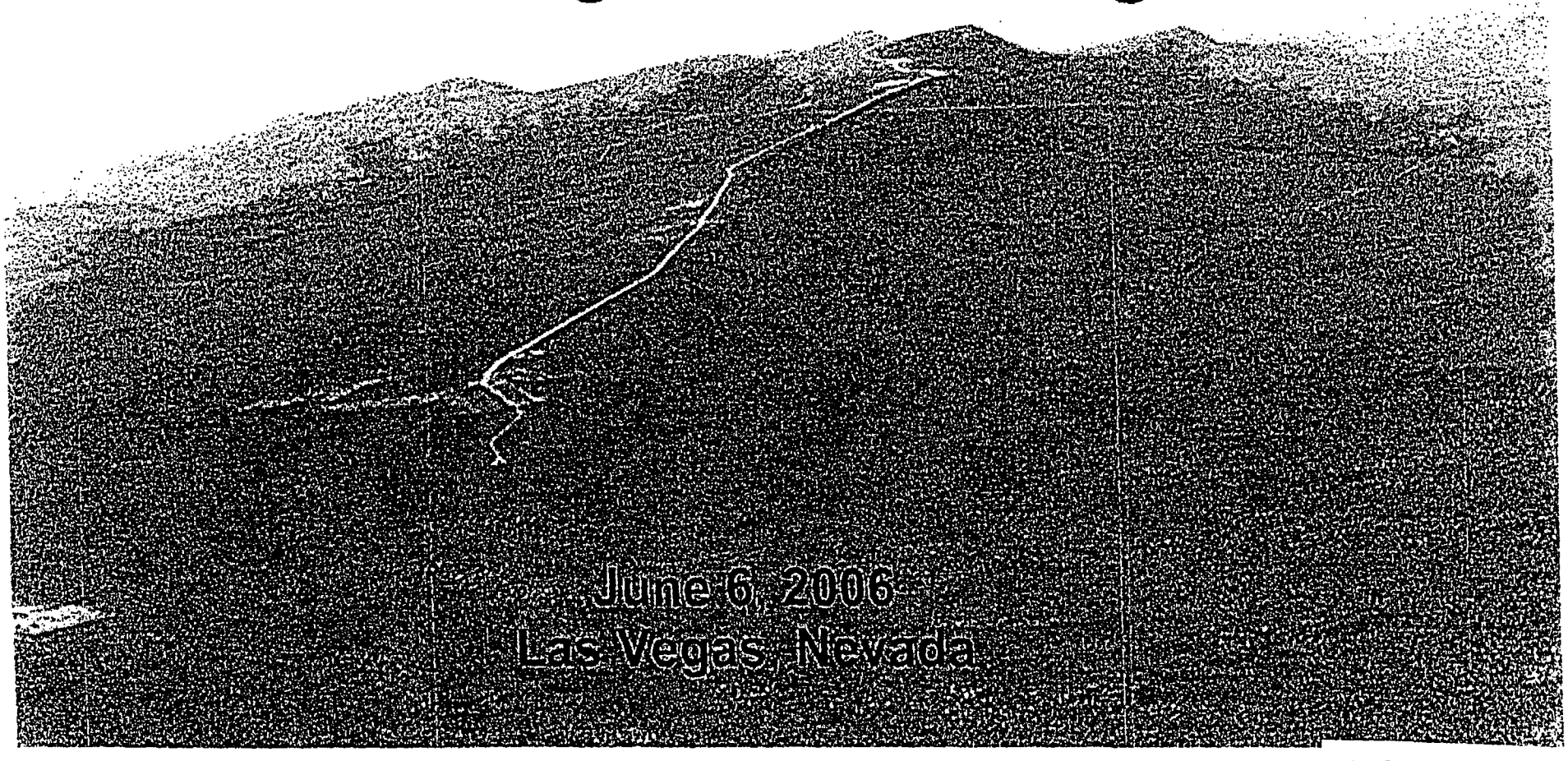
U.S. Department of Energy

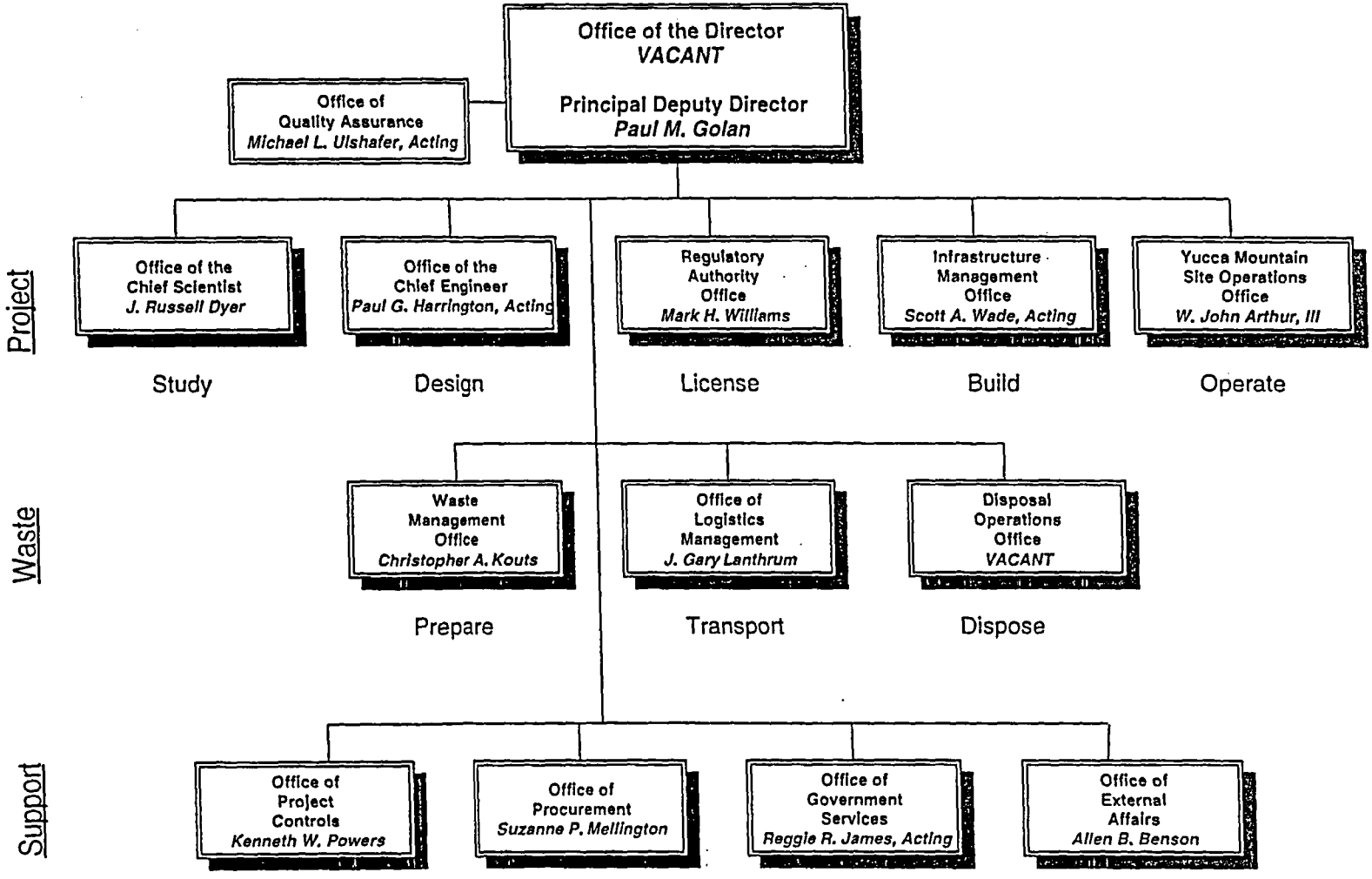
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

DOE/NRC Quarterly Management Meeting



Enclosure 3

Office of Civilian Radioactive Waste Management



Effective 5/8/2006

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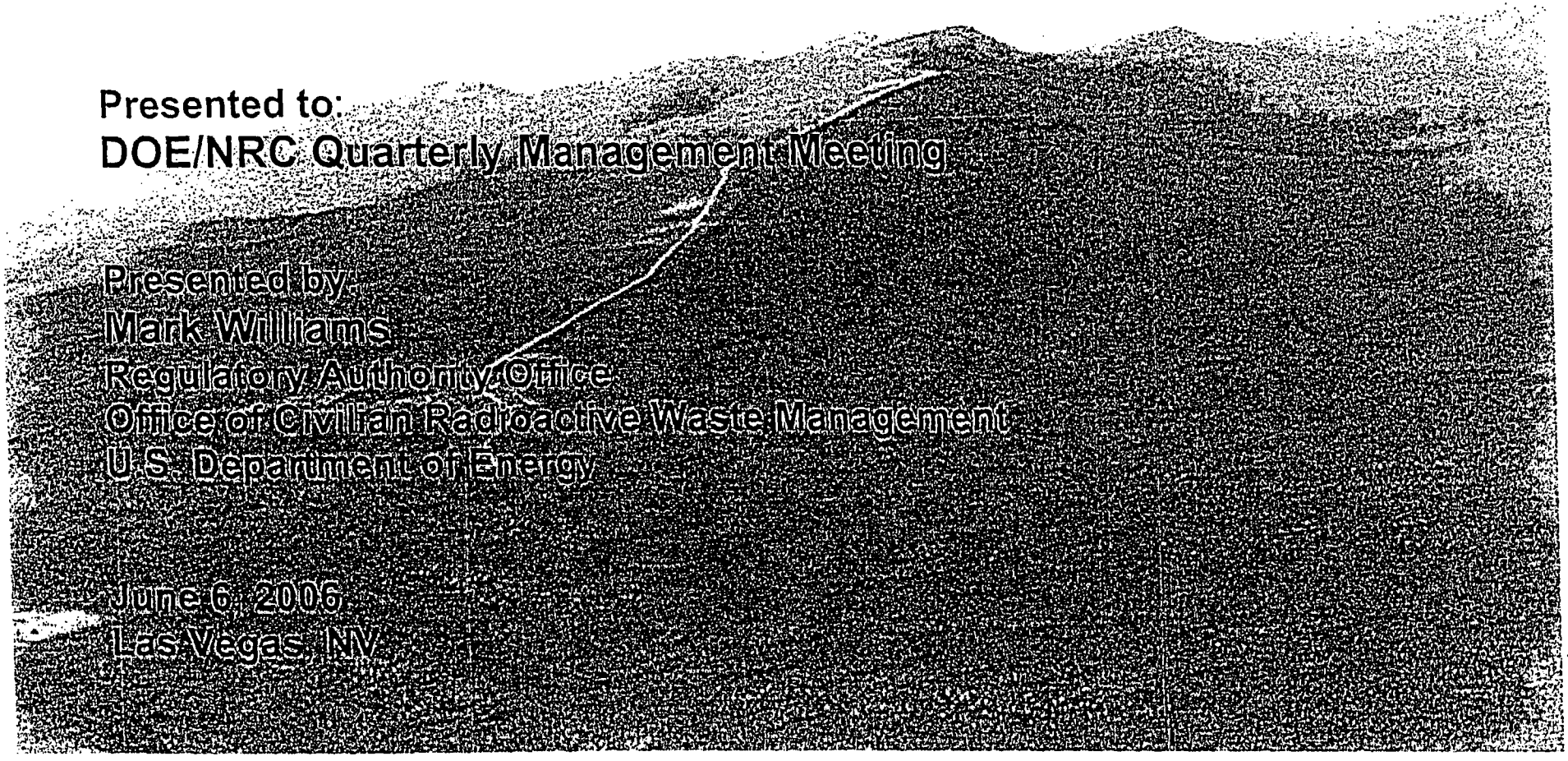
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

Licensing Update



Presented to:
DOE/NRC Quarterly Management Meeting

Presented by:
Mark Williams
Regulatory Authority Office
Office of Civilian Radioactive Waste Management
U.S. Department of Energy

June 6, 2006
Las Vegas, NV

Topics for Discussion

- Preclosure Safety Analysis (PCSA) and Supporting Information Technical Meeting
- Preclosure Seismic Safety Basis Technical Meeting
- Design Control
- Lawrence Livermore Audit Inquiry Status
- Status Key Technical Issue Agreement Items and Additional Information Needs
- Future Interactions

Preclosure Safety Analysis and Supporting Information Technical Exchange/Management Meeting

- NRC acknowledged at the May 16-17 Technical Exchange that DOE has made significant progress in understanding NRC requirements and expectations for the PCSA
- DOE understands NRC's key messages and expectations
  - Specific information and technical bases needed to demonstrate the ability of important-to-safety (ITS) structures, systems, and components (SSCs) to perform intended safety functions
  - It is necessary to estimate the reliability of SSCs to develop and categorize event sequences, as part of the PCSA
  - NRC and DOE agree that different approaches may be used to estimate the reliability of SSCs, provided that sufficient technical bases are specified
  - DOE is developing the methodology for determination of SSC reliability and will provide it to NRC in August 2006

Preclosure Seismic Safety Basis Technical Exchange/Management Meeting

- DOE received NRC's Draft Interim Staff Guidance Document HLWRS-ISG-01, *Review Methodology for Seismically Initiated Event Sequences*
  - Publicly available by NRC's May 22 Federal Register Notice (71 FR 29369)
- DOE is currently reviewing this ISG and looks forward to a productive discussion of our planned approach and to obtaining further regulatory insights from the NRC staff during tomorrow's meeting
- Among other goals, DOE plans to use the results of the discussion at the technical exchange as a basis for submitting comments on the ISG to NRC before the close of NRC's public comment period on July 6, 2006

Design Control

- NRC's January 6, 2006, letter requested a commitment by DOE to implement design control after the CD-1 decision
- DOE initiated a design review to determine our readiness and ability to meet such a commitment
  - Review included a readiness review on procedures and two vertical slices on Waste Package Structural Design and Subsurface Layout
- This review was completed in mid-May and concluded:
  - Design control procedures are in place
  - Vertical slices found no significant issues in design control
- DOE is currently evaluating the state of the design control process to determine if approval of products for CD-1 design control is warranted
  - DOE plans to use performance-based assessments to confirm implementation of design control processes

Status of DOE's Response to NRC Observation Audit Report OAR-05-05 BSC Internal Audit of LLNL

- DOE and has undertaken a number of activities to address NRC's concerns
  - Thorough evaluation of the technical and programmatic issues
  - Utilization of the Corrective Action Program to document and address the issues including use of Management Oversight Board
  - Performance of critical self-assessments and implementation of resulting recommendations
  - Review of issue by an Independent Team

Status of DOE's Response to NRC Observation Audit Report OAR-05-05 BSC Internal Audit of LLNL (Continued)

- Corrective Action Program has been used to document and correct these issues
  - Including two Level-A Condition Reports
    - CR-7395: NRC Report documents Unidentified Deficiencies at LLNL for Audit BQA-BSC-05-07
    - CR-7418: Use of humidity probes outside their range of calibration
  - Root cause analyses are in progress for these CRs
- DOE and BSC have preformed critical self-assessments on the effectiveness of audits

Status of DOE's Response to NRC Observation Audit Report OAR-05-05 BSC Internal Audit of LLNL (Continued)

- Independent Review of BSC audit commissioned by DOE management
  - Focuses on the concerns related to LLNL's calibration of probes and on BSC's audit activities in relation to these concerns and evaluates:
    - Technical issues with use of probes
    - Quality assurance and procedural concerns raised as a result of the audit
    - Communication and cultural issues that apparently surfaced in connection with the audit
  - Final report to be issued shortly

NRC Observation of BSC QA Audit of LLNL Results

- Preliminary line management results for the probe calibrations show
  - Humidity probes were adequately calibrated
  - Control of Maintenance and Test Equipment requires improvement, specifically use of Out of Calibration process
  - Use of the Corrective Action Program requires improvement
- As a result of the BSC QA audit issues, corrective actions are being developed and implemented
  - Root causes
    - Audit planning was inadequate
    - Unclear protocol for supporting observers
    - Unclear roles and responsibilities

Status of Key Technical Issue Agreement Items and Additional Information Needs

- 256 of 293 KTI Agreement Items are complete
- NRC has identified Additional Information Needs for 27 Agreement Items
- DOE has evaluated on-going and planned work to address these AINs
  - Expect to submit approximately 6 AINs in FY 2006
    - In the areas of Total System Performance Assessment and Integration, Evolution of the Near Field Environment, and Igneous Activity
  - DOE will provide NRC with a schedule for AIN submittals when the planning effort is complete

Future Interactions

- Technical Issues
  - Preclosure Seismic Safety Basis (6/7/2006)*
  - Transportation, Aging, and Disposal Canister*
  - CD-1 Design*
  - Consideration of Human Reliability*
  - Aircraft Hazards Analysis*
  - Infiltration
  - Science and Technology Program Status
- Programmatic Issues
  - Corrective Action Program (TBD proposed September 2006)
  - Format and Content of Licensing Documents (e.g. technical specifications, license conditions, criteria for changes)

*Topics are consistent with the "Guidelines for Preclosure Pre-Licensing Interactions" (NRC 9/9/2005 and DOE 10/24/2005)

Potential Impacts of TADs on KTI Agreements Considered Complete by NRC

- No impact on 96% of the 256 KTI agreements considered complete
- Could impact 11 KTI agreements considered complete

KTI/AIN	KTI/AIN Summary	NRCs Risk Significance	KTI Status	BSC Licensing Lead	TADs Impact	Comments on Impacts
CLST.3.02	In the revision to the "Summary of In-Package Chemistry for Waste Forms," AMR, address specific NRC questions regarding radiolysis, incoming water, localized corrosion, corrosion products, transient effects, and a sensitivity study on differing dissolution rates of components. DOE stated that these specific questions are currently being addressed in the revision of the "Summary of In-Package Chemistry for Waste Forms AMR", ANL-EBS-MD-000050 and related AMRs and calculations. To be available in January 2001.	H	Complete	P. Nair	Possible	TAD materials may alter in-package chemistry.
ENFE.3.03	Provide analyses to verify that bulk-scale chemical processes dominate the in-package chemical environment. The DOE will provide analyses justifying the use of bulk chemistry as opposed to local chemistry for solubility and waste form degradation models. These analyses will be documented in an update to the Miscellaneous Waste-Form FEPs AMR (ANL-WIS-MD-000009) or in an update to the Summary of In-Package Chemistry for Waste Forms AMR (ANL-EBS-MD-000050), expected to be available in FY 02.	H	Complete	P. Nair	Possible	TAD materials may alter in-package chemistry.
CLST.3.01	The revision to the "Summary of In-Package Chemistry for Waste Forms" in AMR, the NRC needs to know whether and how initial failures are included in the in-package chemistry modeling, taking into account the multiple barrier analysis. DOE stated that the "Summary of In-Package Chemistry for Waste Forms" AMR, ANL-EBS-MD-000050, deals with time since waste package breach, instead of time of waste package failures. The model is appropriate for the current implementation in the TSPA scenarios because breaches do not occur until after aqueous films may be sustained. Multiple barrier analyses are discussed in the TSPAI IRSR, and therefore will be discussed in the TSPA KTI Technical Exchange.	M	Complete	G. Martin	Possible	TAD materials may alter in-package chemistry.
CLST.3.03	Provide a more detailed calculation on the in-package chemistry effects of radiolysis. DOE stated that the calculations recently performed as discussed at the 9/12/00 Technical Exchange and preceding teleconferences are being documented. These calculations will be referenced and justified in the revision of the "Summary of In-Package Chemistry for Waste Forms" AMR, ANL-EBS-MD-000050, and will be available in January 2001.	M	Complete	P. Nair	Possible	Material changes in the TAD may affect radiolysis products.
ENFE.1.01	Provide updated FEPs AMRs with additional technical bases for those FEPs previously identified by the NRC in Rev 03 of the ENFE IRSR as inadequately screened. In Rev 03 of the ENFE IRSR, the NRC identified 17 FEPs associated with Subissue 1 for which no screening arguments were identified in the FEPs database, screening arguments were inconsistent with other project documents, or inadequate exclusion arguments were provided. The lack of screening arguments has been addressed in Rev 00 of the FEPs database and in Rev 00 of the supporting AMRs. Current revisions (or ICNs) of the FEPs AMRs, scheduled for completion in January 2001, will partially address the remaining NRC comments. Consideration of the remaining NRC comments will be provided in subsequent FEPs AMR revisions, expected to be available as periodic revisions, the entirety of which will be available prior to license application.	M	Complete	P. Nair	Possible	TADs may have effects on thermal loading and in-package chemistry. FEPs screening may change.
ENFE.4.07	Provide updated FEPs AMRs with additional technical bases for those FEPs previously identified by the NRC in Rev. 03 of the ENFE IRSR as inadequately screened. In Rev 03 of the ENFE IRSR, the NRC identified 17 FEPs associated with Subissue 1 for which no screening arguments were identified in the FEPs data base, screening arguments were inconsistent with other project documents, or inadequate exclusion arguments were provided. The lack of screening arguments has been addressed in Rev 00 of the FEPs data base and Rev 00 of the supporting AMRs. Current revisions (or ICNs) of the FEPs AMRs, scheduled for completion in January 2001, will partially address the remaining NRC comments. Consideration of the remaining NRC comments will be provided in subsequent FEPs AMR revisions, expected to be available as periodic revisions, the entirety of which will be available prior to license application.	M	Complete	G. Appel	Possible	FEPs screening technical basis may change.
TSPAI.3.14	DOE should account for the full range of environmental conditions for the in-package chemistry model (ENG4.1.1). DOE will update the in-package chemistry model to account for scenarios and their associated uncertainties required by TSPA. This will be documented in the In-Package Chemistry AMR (ANL-EBS-MD-000056) expected to be available to NRC in FY 2003.	M	Complete	P. Nair	Likely	TAD materials may alter in-package chemistry.

Potential Impacts of TADs on KTI Agreements Considered Complete by NRC

- No impact on 96% of the 256 KTI agreements considered complete
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KTI/AIN	KTI/AIN Summary	NRCs Risk Significance	KTI Status	BSC Licensing Lead	TADs Impact	Comments on Impacts
CLST.2.09	Demonstrate the drip shield and waste package mechanical analysis addressing seismic excitation is consistent with the design basis earthquake covered in the SDSS KTI. DOE stated that the same seismic evaluations of waste packages and drip shield (revision of AMRs ANL-UDC-MD-000001 and ANL-XCS-ME-000001) will support both the SDSS KTI and the CLST KTI, therefore consistency is ensured. These revisions will be completed prior to LA.	L	Complete	P. Nair	Possible	Need to evaluate seismic effects and the effect of mass changes to the waste packages.
CLST.5.03	Provide the "Probability of Criticality Before 10,000 years" calculation. DOE stated that it will provide the calculation to NRC by November 1, 2000.	L	Complete	G. Martin	[redacted]	New criticality evaluations may be needed.
TSPAI.2.05	It is not clear to the NRC that the current list of FEPs (i.e., the list of FEPs documented in TDR-WIS-MD-000003, 00/01) is sufficiently comprehensive or exhibits the necessary attribute of being auditable (e.g., transparent and traceable). As discussed in the two TSPAI technical exchanges, there are unclear aspects of the approach that DOE plans to use to develop the necessary documentation of those features, events, and processes that they have considered. Accordingly, to provide additional confidence that the DOE will provide NRC with: (1) auditable documentation of what has been considered by the DOE, (2) the technical basis for excluding FEPs, and (3) an indication of the way in which included FEPs have been incorporated in the performance assessment; DOE will provide NRC with a detailed plan (the Enhanced FEP Plan) for comment. In the Enhanced FEP Plan, DOE will address the following items: (1) the approach used to develop a pre-screening set of FEPs (i.e., the documentation of those things that DOE considered and which the DOE would use to provide support for a potential license application), (2) the guidance on the lev that DOE will use for redefining FEPs during the enhanced FEP process, (3) the form that the pre-screening list of FEPs will take (e.g., list, database, other descriptions), (4) the approach DOE would use for the ongoing evaluation of FEPs (e.g., how to address potentially new FEPs), (5) the approach that DOE would use to evaluate and update the existing scope and description of FEPs, (6) the approach that DOE would use to improve the consistency in the level of detail among FEPs, (7) how the DOE would evaluate the results of its efforts to update the existing scope and definition of FEPs, (8) how the Enhanced FEP process would support assertions that the resulting set of FEPs will be sufficiently comprehensive (e.g., represents a wide range of both beneficial and potential adverse effects on performance) to reflect clearly what DOE has considered, (9) how DOE would indicate their disposition of included FEPs in the performance assessment, (10) the role and definition of the different hierarchical levels used to document the information (e.g., Acomponents of FEPs@ and Amodeling issues@), (11) how the hierarchical levels used to document the information would be used within DOE's enhanced FEP process, (12) how the Enhanced FEP Plan would result in documentation that facilitates auditing (i.e., lead to a process that is transparent and traceable), (13) DOE's plans for using configuration management controls to identify FEP dependencies on ongoing work and design changes. DOE will provide the Enhanced Plan to NRC by March 2002.	L	Complete	G. Appel	Possible	FEPs screening may change.
TSPAI.2.06	Provide justification for the approach to: (1) the level of detail used to define FEPs; (2) the degree of consistency among FEPs; and (3) comprehensiveness of the set of FEPs initially considered (i.e., before screening). DOE proposes to meet with NRC periodically to provide assessments of the DOE's progress, once it has initiated the Enhanced FEP process, and on changes to the approach documented in the Enhanced FEP Plan. During these progress meetings DOE agrees to provide a justification for their approach to: (1) the level of detail used to define FEPs; (2) the degree of consistency among FEPs; and (3) comprehensiveness of the pre-screening set of FEPs.	L	Complete	G. Appel	Possible	FEPs screening may change. May need to justify new FEPs.

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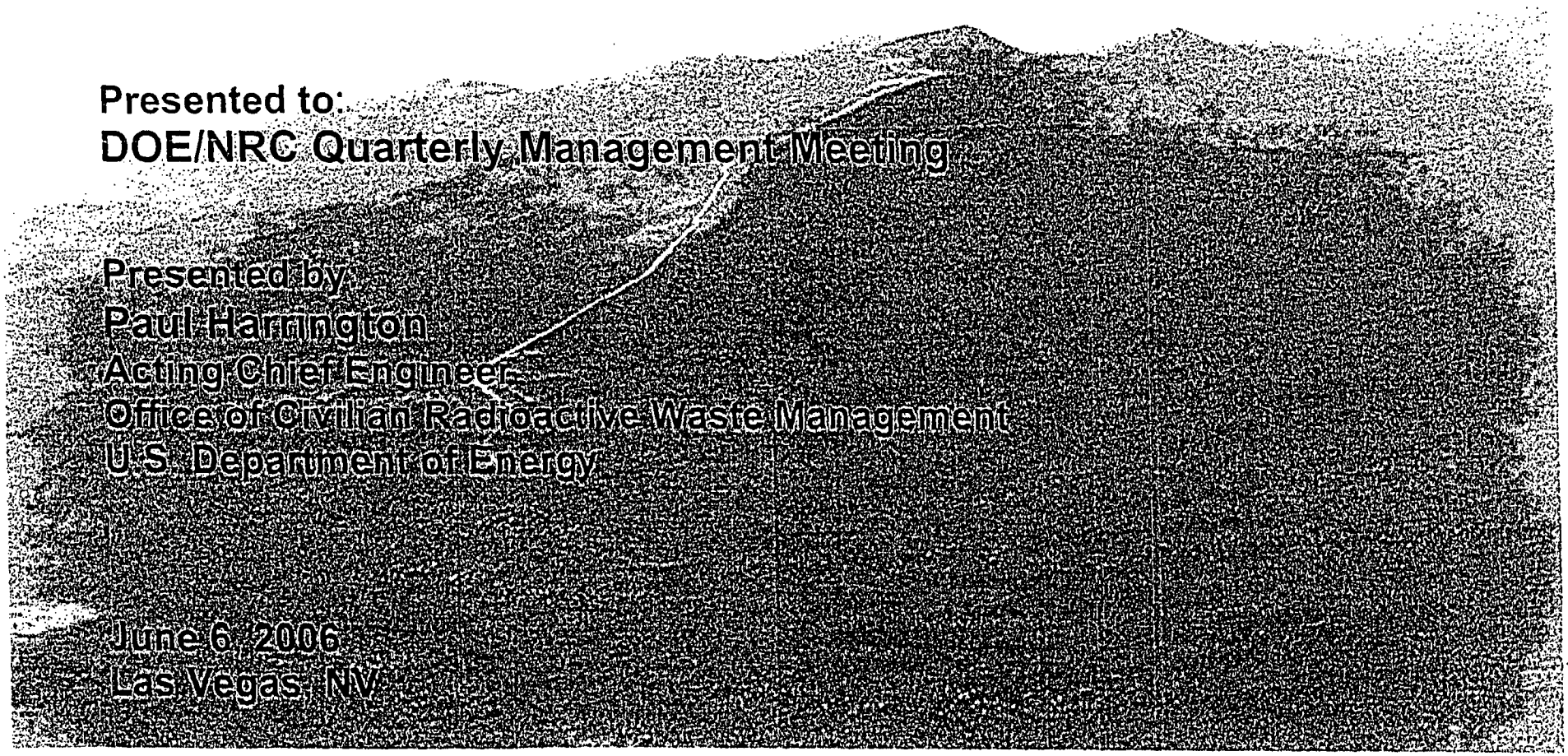
Design and Engineering Update



Presented to:
DOE/NRC Quarterly Management Meeting

Presented by:
Paul Harrington
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Office of Civilian Radioactive Waste Management
U.S. Department of Energy

June 6, 2006
Las Vegas, NV

Main Topics

- Critical Decision-1 (CD-1) Status
- Status of Requirements Management and Design Control

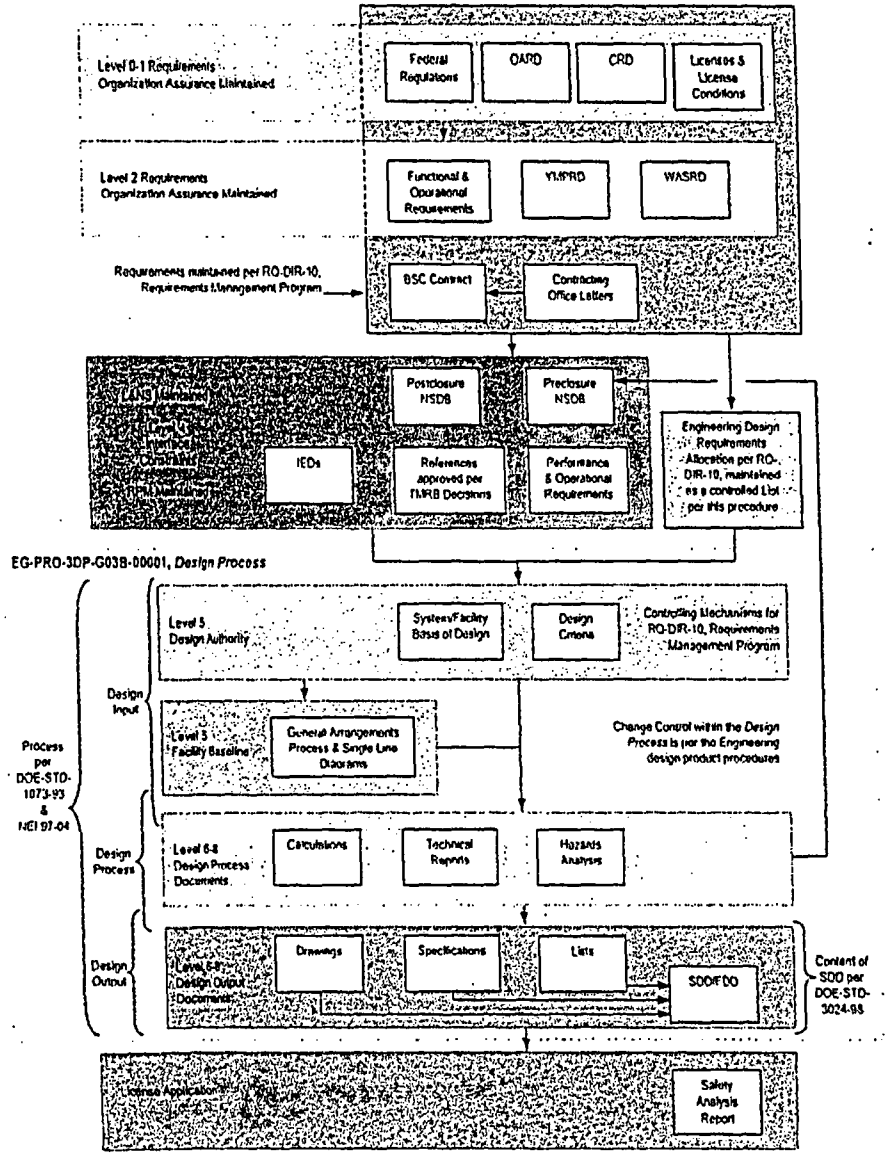
Critical Decision-1 Status

- CD-1 documentation was submitted to the Energy Systems Acquisition Advisory Board (ESAAB) to implement the canister-based approach
- An authorization letter is anticipated, which will provide formal concurrence with the revised approach
- A baseline change proposal is under development to implement the change, pending receipt of the authorization letter
- DOE will provide conceptual design and Preclosure Safety Analysis (PCSA) information on this revised approach to the NRC in a future Technical Exchange
- This information will be further developed to satisfy the requirements for submittal of a License Application

Requirements Management/ Design Control Status

- New requirements management/ design control process being put in place
  - Requirements management database is operational
  - Level 1 requirements document, CRWMS Requirements Document (CRD), Rev. 7 has been issued
  - New Level 2 requirements document, Monitored Geologic Repository Requirements Document (MGR-RD), being put into place over next few months
    - Rev. 0, replaces Yucca Mountain Project Requirements Document (YMP-RD) and Level 2 Functional and Operational Requirements (F&ORs) documents
    - Rev. 1, incorporates CRD, Rev. 7
    - Rev. 2, incorporates CD-1

Requirements Management/Design Control Status



Requirements Management/ Design Control Status

- Several notable changes are being made to the set of requirements, design and preclosure safety analysis products
  - The system description documents (SDDs) and facility description documents (FDDs) are being reworked, with the requirements to be extracted and captured in a new Basis of Design document
  - The SDDs and FDDs will continue to contain design solutions
  - A new Level 3 technical baseline document is being created to identify the design solutions appropriate to this level

Requirements Management/ Design Control Status

- The Nuclear Safety Design Basis (NSDB) is a preclosure safety analysis output document, that identifies the functions that are credited for structure, system and component performance
- The purpose of the NSDB is unchanged; the contents will be updated to reflect implementation of the canister-based approach
- The NSDB originates from a design solution, but becomes a requirements document to control future design changes to preclude inadvertently impacting the facility design basis

Requirements Management/ Design Control Status

- Processes and procedures are in place to support resumption of design and PCSA activities
- Products that are to be developed under the new system, i.e., Level 3 technical baseline and Basis of Design documents, have not yet been created, due in part to the restriction on approval of quality-affecting design and PCSA products
- Upon approval of the Level 2 requirements and Level 3 baseline documents, authorization should be granted to BSC for resumption of approval of quality-affecting products

Requirements Management/ Design Control Status

- Next steps
  - DOE to complete Level 2 requirements document
  - BSC to complete Level 3 technical baseline
  - DOE to authorize BSC to resume approval of quality-affecting design and PCSA products
  - BSC to develop Basis of Design document
  - BSC to begin development of initial design output implementing canister-based approach
  - DOE to perform compliance assessment of implementation of design control process in September/October 2006
  - DOE to notify NRC of establishment of design control

Consolidated Action Items
From the NRC/DOE Quarterly Management Meetings
(June 06, 2005)

Item No.	Description	Status
MM 0402-C1	DOE will identify any to-be-verified (TBV) data in the LA that needs to be qualified (if any) at the time of LA submittal (Commitment).	Open. This item will remain open until LA submittal.
MM 0506-01	DOE and NRC to determine the dates for the list of proposed technical interactions discussed during the June 6, 2005 Management Meeting.	Open. This item will remain open as a continuing action and progress will be reported at future management meetings.
MM 0509-01	DOE/NRC to hold technical exchange after the DOE report addressing the USGS alleged falsification of documents has been released by the Secretary.	Open. The report has been issued and a technical exchange will be scheduled contingent on staff's availability.
MM 0512-01	DOE to provide to NRC a schedule for submittal of planned additional information needs for the remaining key technical issues under review by the NRC.	Open.

Note: The Quarterly Management Meeting action items are designated as "MM yymm-nn" where yy is the two digit year, mm is a two digit month and nn is a two digit action item number from that meeting.